A STUDY OF CONSUMERS' ATTITUDES TOWARDS "GREEN" PRODUCTS IN HONG KONG

by

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ABSTRACT

As the Hong Kong public has become more environmentally conscious in recent years, marketers have found that there are opportunities to sell their products using an environmental appeal. This environmental consciousness is very strong already in the west. In the United States, for example, survey data suggest that about 80 percent of respondents are willing to pay 5 percent more for a "green" product. This study was designed to delve into consumers' attitudes towards "green" products in the territory. One hundred respondents were interviewed by phone, and results indicated that there exists an environmentally concerned segment in Hong Kong. Marketers are advised to take proactive measures to plug into this trend.

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CHAPTER I

INTRODUCTION

Background

Although on the receiving end of continuous complaints from environmental groups, it has only been in the last few years ago that the Hong Kong Government has begun to pay serious attention to the environmental issues in the territory.[1] Given the extreme lassez-faire capitalism of Hong Kong and the government's policy of positive non-intervention, not surprisingly manufacturers in Hong Kong have long adopted a reactive approach to the issues.[2] The costs of manufacturing their products are perceived as far more important than the deterioration of the ozone layer or other environmental concerns. However, as more residents are exposed to the issues through the mass media, the public is becoming more environmentally conscious. This trend, in turn, provides a great opportunity for marketers to sell their products using an environmental proposition. As noted by Gary Conway, Executive Creative Director of Leo Burnett (Hong Kong), "Although environmental advertising is in its infancy here, people are receptive to it."[3]

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[1] In mid-1989, a HK$20 billion, 10-year clean-up plan was announced. See Allen, Jamie. "Set in a Septic Sea." Far Eastern Economic Review, 19 September 1991, pp. 40-42.

[2] Kwong, Jo A. Market Environmentalism: Lessons for Hong Kong. Hong Kong: The Chinese University Press, 1990.

[3] Hodgson, Gregor. "Showing the World You Care." Far Eastern Economic Review, 19 September 1991, pp. 54-55.

Consequently, wording like "environmentally friendly", "ozone friendly", "recyclable", or "recycled" can be seen on the packages of many products in Hong Kong. Nonetheless, the level of environmental consciousness and the attitudes of the general public towards these beautiful words are still uncertain. According to a survey quoted in an article in Next magazine,[4] the environmental consciousness of the Hong Kong people is among the lowest of the fourteen countries included in the survey. They get the worst scores in environmental knowledge and the lowest involvement in environmental protection activities. Yet 53 percent of the local respondents are willing to pay more to buy products with recyclable packages.

It may well be time now for marketers in Hong Kong to consider the impact of this "eco-chic", the sometimes expressed concern about the ecology, on their long term strategies. On the one hand, the trend is probably inevitable because of the increasing requirements from the government and environmental groups. On the other hand, the decision is difficult to make since existing information is not enough, especially on the consumer side. Therefore, it is the objective of this study to investigate this unknown: what do people in Hong Kong today *really* think about the ecology issue?

Statement of The Problem

The incongruence between the increasing number of "green" products and the seemingly low level of environmental consciousness raises the question of the timeliness of offering these products in the market now. Before taking any further steps, marketers should have a better understanding of consumers' attitudes towards these so-called "green" products.

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[4] Leung, Hiu. S. "The Businessmen Make Use of the Environmental Trend." Next Magazine, 10 July 1992, pp. 75-78. Details about the survey are not further stated in the article.

First of all, the concept "green" product itself should be clearly defined. An ideal "green" product should have the following characteristics:

(1) The raw materials are not scarce resources, and the mass production of the product will not have any significant negative effect on the availability of those resources.
(2) The production process will not produce negative effects on the environment and on workers.
(3) The scrap produced by the final product (including the package) can be degraded or reused ("recycled") in various ways in a reasonable time frame.

Unfortunately, this "ideal" ecological product has not yet been produced ..... perhaps it never will be. Instead, marketers select (or even create) favorable attributes of their products and exaggerate them. A list of these attributes and a brief definition of each of them can be found in Appendix 1. They include biodegradable, environmentally friendly, no animal testing, ozone friendly, pH neutral, phosphate-free, recyclable, and recycled.

Besides, consumers may also have different attitudes towards different kinds of products. Indeed, this assumption is true, at least in the US market. As revealed by the first annual Advertising Age/Gallup Organization "green marketing" environmental study,[5] respondents gave different product categories different ratings for environmental concern. Cereal marketers received the highest average ratings, while disposable diapers were among

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[5] Chase, Dennis. "P & G Gets Top Marks in AA Survey." Advertising Age, 29 January 1991, pp. 8-10.

the worst. Evidently, the product category can produce a significant effect on consumers' attitudes towards "green" products.

In sum, the purpose of this study is to investigate the attitudes of Hong Kong consumers towards "green" products in the market. Matters addressed included selected demographics , perceived responsibilities in promoting environmental issues, concerns about selected environmental problems, and the relative importance of selected buying factors. All in all, six objectives in this research may be identified.

Research Objectives

(1) To study consumers' attitudes towards "green" products in Hong Kong.
(2) To study perceived responsibilities in promoting environmental issues.
(3) To study the perceived significance of six selected environmental problems.
(4) To study factors influencing the buying of two selected products: washing powder and batteries.
(5) To identify demographic variables which can differentiate consumers' attitudes towards "green" products.
(6) To identify indicative variables which can differentiate consumers' attitudes towards "green" products.

CHAPTER II

RELATED LITERATURE

Early Literature

The first Earth Day in 1970 awakened the public's attention towards the ecological issue, especially in western countries. Marketers began to realize that there were many untouched opportunities concerning the issue. However, before any marketing programs could be implemented, public attitudes towards the issue should be studied. Questions like: "Is the general public receptive to an environmentally compatible product?" or "Who are the ecologically concerned consumers?" were waiting for answers.[6]

One of these pioneer works was conducted by Kassarjian in 1971.[7] The objectives of the study were to examine the reactions of consumers to a heavy advertising campaign for a "green" gasoline and to reveal some of the marketing correlates of attitudes towards air pollution. Results showed that the so-called "green" gasoline received high recall rates. Two-thirds of the people could identify the company marketing the product, and 55 percent could identify the brand name. One-third of the sample considered air pollution to be the most critical problem and members of this group could spell out both the names of the company and the brand significantly more

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[6] Terms like "environmentally friendly product" or "green consumers" were not as widely used in the early 70s as they are now.

[7] Kassarjian, Harold H. "Incorporating Ecology into Marketing Strategy: The Case of Air Pollution." Journal of Marketing, 35 (July 1971): 61-65.

than their counterparts. Besides, the study also found that, in general, consumers were willing to try the product at a premium price.

No significant segmentation variable was observed. Selected demographic variables such as age, sex, socioeconomic status, and political party membership did not seem to be relevant. In sum, only the attitude towards a related environmental issue was found to be relevant to attitudes towards the green product.

Kassarjian's result was questioned by Lawrence Lepisto because of the undisguised intent of the study and the questionable validity of response measure.[8] In his doctoral thesis, Lepisto found that environmental compatibility was a strong product attribute in attracting consumer demand, even stronger than convenience in attracting consumer demand at lower price levels.

In another exploratory study, Kinnear, Taylor, and Ahmed tried to identify demographic or psychological attributes of ecologically concerned consumers.[9] Results indicated that personality variables were better predictors than socioeconomic variables. Those who were more open to new ideas had a strong desire to know how things work, and were moderate to high in harm avoidance were more ecologically concerned than the average. No demographic characteristics were found to be statistically significant in relation to the ecological concern index.

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[8] Lepisto, Lawrence R. An Empirical Study of the Effect of Environmental Product Attributes, Convenience, and Price on Product Preference and Socially Responsible Consumer Behavior. Michigan: University Microfilms International, 1978.

[9] Kinnear, Thomas C., Taylor, James R., and Ahmed, Sadrudin A. "Ecologically Concerned Consumers: Who are They?" Journal of Marketing. 38 (April 1974): 20-24.

It should be noted that it is only in recent years that a large number of "green" products can be seen on the market. One of the reasons is that the current technological level is sophisticated enough to produce "truly" environmentally friendly product at large scale. Another reason is that the level of environmental consciousness has reached an all-time high. Environmentally compatible / friendly products now receive a remarkable level of attention and the huge market justifies further efforts.

Recent Literature

In her 1990 article, Fisher identified five fundamental issues in the Nineties, and environment is one of them.[10] Indeed, this argument is commonly accepted by other researchers. Dennis Chase, executive director of *Advertising Age*, even claimed that "no previous movement has ever been embraced this rapidly. Not the civil rights movement. Not the feminist movement. Not rock 'n' roll."[11]

Many facts support this argument. The number of green products, as a percentage of all new products, rose from 4.5 percent to 9.2 percent in the first six months of 1990 in US supermarkets.[12] FIND/SVP, another marketing research firm, predicted US $8.8 billion spending on green products by the year 1995.[13]

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[10] Fisher, Anne B. "What Consumers Want in the 1990s." Fortune, 29 January 1990, pp. 48-52. The other four issues are time, quality, health, and home.

[11] Davis, Joel J. "A Blueprint for Green Marketing." The Journal of Business Strategy, July/August 1991, pp. 14-17.

[12] Hemphill, Thomas A. "Marketer's New Motto: It's Keen to be Green." Business and Society Review, 78 (1991): 39-44.

[13] Ibid.

Moreover, according to a survey by Century Research Corp., 25 percent of respondents had already stopped buying the products of at least one company because they believed the company wasn't "a good environmental citizen." The survey also found that respondents passed up products for environmental concerns. Thirty-three percent claimed they had stopped using plastics, 33 percent have given up aerosols, 10 percent no longer bought tuna fish, 4 percent abandoned detergents and 2 percent have dropped insecticides.[14]

In another survey, similar results were found. According to Gerstman & Meyers' second annual environmental marketing survey, 82 percent of its 313 female respondents "have changed their purchasing decisions based on concerns about the environment." Likewise, 56 percent refused to buy a product during the past year because of environmental concerns.[15]

Until this point, all the articles reviewed were conducted in the western hemisphere. In fact, some recent surveys have also been conducted in the east. One such was conducted by Survey Research Singapore (SRS), a member of the Survey Research Group (SRG).[16]

In a 1992 study SRS discovered that 73 percent of adult Singaporeans were familiar with the term "environmental protection" and felt they knew something about it. The figure for last year was 53 percent. Moreover, 8 percent of the respondents had bought green batteries before. This was fractionally more than the buyers of phosphate-free soap powders. In

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[14] Freeman, Laurie and Dagnoli, Judann. "Green Concerns Influence Buying." Advertising Age, 30 July 1990, p. 19.

[15] Dagnoli, Judann. "Green Buys Taking Root." Advertising Age, 3 September 1990, p. 27.

[16] "Singapore Becomes a Little Greener." SRG News 70 (September 1992): Surveys.

addition, 70 percent felt there was little they could do as individuals, while 95 percent felt the government should give high priority to protecting the environment.

In conclusion, as noted by Thomas, the green trend provides marketers prime opportunities for product improvement and differentiation.[17] In order to evaluate the size of the impact, consumers' attitudes towards this new kind of product should be examined.

Consumer Attitudes Literature

Numerous surveys have been conducted to investigate consumer attitudes towards green products in the US market. Three of them have tried to distinguish the different groups of consumers in the US market according to their degree of environmental concern.

In the J. Walter Thompson Co.'s Greenwatch survey, four groups of consumers were identified. They were the "die-hard greener-than-greens"[18] (23%), "somewhat-concerned greens" (59%), "light greens" (15%), and the "un-greens" (3%).[19]

In another survey conducted by the Roper Organization for household products marketer S. C. Johnson & Son, five groups were recognized. They were "true-blue greens" (11%), "greenback greens" (11%), "sprouts" (26%), "grousers" (24%), and "basic browns" (28%).[20]

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[17] Thomas, Hester. "By Appointment to the Green Consumer." Accountancy, September 1989, pp. 116-117.

[18] The various groups cited in the different studies are spelled-out in detail in Appendix 2.

[19] Levin, Gary. "Consumers Turning Green: JWT Survey." Advertising Age, 12 November 1990, p. 74.

[20] Hume, Scott. "Consumer Doubletalk Makes Companies Wary." Advertising Age, 28 October 1991, p. GR4. See also Appendix 2.

Finally, the Simmons Market Research Bureau suggested still another classification. The five Simmons clusters included "premium greens" (22%), "red, white, and greens" (20%), "no-cost ecologists" (28%), "convenient greens" (11%), "unconcerneds" (19%).[21]

As one can see, the three surveys overlap and are not necessary congruent, since they were done independently. However, it appears that the percentage of the so-called "un-green" or "basic browns" or "unconcerneds" ranged from a low of 3 percent to a high of 28 percent. On the other extreme, the data seemed to fit pretty well if the first two categories in the Roper survey are combined into one group. Then the "die-hard greener-than-greens," "premium greens," and the combined group will be a steady percentage of 22 percent to 23 percent. The problem is that the "concerneds" in the JWT survey were identified as a group of "better educated older females with high incomes and liberal orientation".[22] But the "greenback greens" in the Roper survey was the youngest group and the biggest environmental spenders.[23]

These findings seemed to be at variance with those in the early literature, which suggested that demographic variables were not good predictors of differentiating ecologically concerned consumers. The almost twenty-year difference should be noted when comparing the two sets of data. Educational efforts during this time, for instance, may have helped to cause the better educated and younger groups to fashion a higher level of environmental consciousness.

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[21] Schlossberg, Howard. "Marketers Told to Heed Consumers Before Big Brother Steps in." Marketing News, 27 April 1992, p. 10. See also Appendix 2.

[22] Same reference as footnote 19.

[23] Same reference as footnote 20.

In addition to the categorization of consumers, those surveys also asked respondents their attitudes towards the four "P"s of marketing which are apposite to green products: *price, promotion, package,* and the *product* itself.

Price

Generally speaking, US consumers are willing to pay more to buy a green product. In the Gerstman & Meyers survey, 78 percent of respondents said they would still switch to an environmental container if it were priced 5 percent higher than a less environmentally friendly container, compared with 64 percent in 1989.[24] Similar results were confirmed by the JWT survey, where 82 percent of respondents said they would pay 5 percent or more extra for environmentally friendly products, compared with 49 percent in 1989.[25] This price premium is an average figure, where different levels of environmental consciousness result in different levels of acceptable premiums. For instance, in the Roper categorization mentioned above, the "greenback greens" were willing to pay 19.6 percent more for green products, where "basic browns" would only spend 3.1 percent more.

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[24] Same reference as footnote 15.

[25] Same reference as footnote 19.

Promotion

Research suggests that Americans are skeptical towards green advertising claims, and have much more confidence in green seals and label claims.[26] Furthermore, according to the JWT survey, only 40 percent of respondents could recall green advertising for any company; only 34 percent could recall a green ad for a specific product; and just 14 percent said they could remember a green ad for a specific company.[27]

Package

The package itself is a promotional tool as well as part of the product. Thus it should received special attention. In fact, 73 percent of respondents were aware of environmental safety labels on packages in the Advertising Age/Gallup survey.[28] Besides, as noted by Judith Wilkenfeld, the Federal Trade Commission (FTC) assistant director for advertising practices, 52 percent of consumers get their environmental information from product labels.[29] As one could see in Appendix A, many of these environmental claims are very vague. Hence, it is not surprising that only 2 percent of US consumers believe the precision of nutritional claims on package labels.[30]

Another issue in packaging is consumers' perception. A classic example is the polystyrene foam sandwich clamshells of McDonald's. According to the results of a product life-cycle assessment by the Stanford Research Institute,

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[26] Same reference as footnote 5.

[27] Same reference as footnote 19.

[28] Same reference as footnote 5.

[29] Same reference as footnote 21.

[30] Same reference as footnote 21.

when all aspects of the issue were considered, polystyrene is better than its paper counterpart environmentally. However, "our customers just don't feel good about it." said Mr. Rensi, McDonald's US President.[31]

Perhaps the customer isn't always right![32]

Product

As mentioned before, product category does produce an effect on the consumers' attitude towards a specific green product. Stereotypes are so strong that the negative attitudes towards a specific brand in a product category may rub off on other brands in the same category. Nonetheless, no previous research supported this hypothesis.

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[31] Hume, Scott. "McDonald's." Advertising Age, 29 January 1991, p. 32.

[32] Winski, Joseph. M. "Big Prizes, But No Easy Answers." Advertising Age, 28 October 1991, p. GR3.

CHAPTER III

METHODOLOGY

Data Collection Method

Data Sources

Secondary data

The first step in the data collection process was to search out business-oriented articles about green marketing, consumer attitudes towards the issue, and various telephone sampling methods. In addition, related books, environmental magazines and bulletins, newspapers, lifestyle magazines, and other sources were also consulted. Moreover, census data were also reviewed in order to better understand the demographic structure of the population.

Primary data

A telephone survey was carried out to study consumer attitudes towards the issue in the territory.

The Survey

Telephone interviews were conducted between March 24 and March 30, 1993. Calls were made to a total of 481 households. 265 of them were contacted and 114 of those who were contacted responded. 87.7 percent of those completed the interview. One hundred successful interviews were conducted.

Research Design

A descriptive research design was used. A questionnaire was designed to explore consumers' attitudes towards environmental issues as well as green products in Hong Kong. A structured questionnaire was constructed for telephone administration. Basically the questionnaire was divided into five sections:

Section I : Screening questions.
Section II : Attitudes towards the four "P"s in green products.
Section III : Attitudes towards selected green products.
Section IV : Attitudes towards environmental issues.
Section V : Demographic Data.

A preliminary version of the questionnaire was then set. Seventeen interviews were conducted as the pretest, and subsequently some modifications were made and the questionnaire was finalized (see Appendix 3). It was then translated into Chinese for the survey (see Appendix 4). A "back-translation" procedure was carried out in order to check the accuracy of the translation.

Sampling

The population of this survey was defined as all telephone households in Hong Kong. In fact, it was very close to the total number of households in the territory.[33] Given the time constraints, directory sampling was used rather than nondirectory alternatives. As a result, the plus-one sampling method was chosen.

The method is more efficient than random digit designs in that it reduces the inclusion of non-working numbers.[34] However, the method is not free from problems. One possible bias is the exclusion of new sets of numbers placed in service after directory publication. Bias can also be introduced if the characteristics of the sample differ from those not covered. Thus, one must compare the sample demographic characteristics with the known characteristics of the population.[35] In this survey, quota sampling was used in order to control the characteristics of the sample.

Sample quotas were set for two variables, sex and age, based on the most updated information of the Statistical Department.[36] Furthermore, statistics from the 1991 census were also consulted.[37] The final quotas are shown in Table 3.1.

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[33] According to the information provided by the Hong Kong Telephone Co., over 99 percent of the households in the territory have at least one telephone.

[34] Landon, E. Laird Jr. and Banks, Sharon K. "Relative Efficiency and Bias of Plus-One Telephone Sampling." Journal of Marketing Research, 14 (August 1977): 294-299.

[35] Ibid.

[36] The most updated information about the population was mid-year of 1992.

[37] Census and Statistics Departement Hong Kong. Hong Kong 1991 Population Census. Census Planning Section. Hong Kong: Census and Statistics Department, 1991.

TABLE 3.1

SAMPLE QUOTAS PER 100 RESPONDENTS

Age	Sex		Total
	Male	Female	
15 - 24	11	10	21
25 - 34	15	15	30
35 - 44	12	12	24
45 - 54	7	6	13
55 - 64	6	6	12
Total	51	49	100

Basically, the first three digits of a given number indicated the district it belonged to.[38] Thus, merely adding a digit to a number would not alter the location. In other words, the samples generated by the three telephone directories would produce three distinct samples: (1) Hong Kong and Islands, (2) Kowloon and Sai Kung, and (3) New Territories. According to the statistics of the 1991 census, the numbers of households of the above areas were 370,542; 621,005; and 588,525, respectively.[39] Consequently, for every 100 households, 24, 39, and 37 should be selected from each of the three directories. The details of selecting the sample are given in Appendix 5.

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[38] Again, the information was provided by the Hong Kong Telephone Co.

[39] Census and Statistics Departement Hong Kong. Hong Kong 1991 Population Census. Basic Tables for District Board Districts. Hong Kong: Census Planning Section, Census and Statistics Department, 1992.

Fieldwork

Telephone interviews were conducted from my home. Deliberately there were only three interviewers in the data collection process to reduce the variation in administration. I was the supervisor and was responsible for any problems during the research process. In order to standardize the procedure, a general guideline was written (see Appendix 6).

The interviews were conducted between 7:00-10:00 p.m. for seven days. If no one answered the phone or there was a busy signal / call waiting, a callback was made later. If the interview was unsuccessful, interviewers would skip to the next number on the page of the directory until a successful call was made. Callbacks was not made for refusal respondents. The frequencies and rates of different types of calls are shown in Appendix 7.

CHAPTER IV

FINDINGS

There are eight major sections in this chapter. The first one covers the basic characteristics of the sample. The second one presents general attitudes towards the environmental issues. Then demographic differences towards these issues are discussed. The fourth section explores the general attitudes towards green products. Demographic differences towards these attitudes are noted. The sixth section gives the ratings for the two selected products, washing powder and batteries. The seventh part shows the underlying relationships between attitudes towards green products and attitudes towards the environmental issues. The final section gives us an idea of the relationships between attitudes towards green products in general and ratings towards the two selected products.

Sample Characteristics

A total of 100 respondents were interviewed. Quotas were met and the percentages of male and female were 51 percent and 49 percent. Percentages of respondents fell in the five age groups were the same as those in Table 3.1. Specifically, they were 21 percent, 30 percent, 24 percent, 13 percent, and 12 percent respectively. Furthermore, 30 respondents claimed that they had never married before. Sixty-seven were married and two were separated, divorced, or widowed. One respondent refused to disclose his marital status.

This result was then compared to the data obtained from the 1991 census.[40] A nonparametric chi-square test was then conducted and no statistical significant difference was found between the two sets of figures.

Educational level was another demographic in this survey. Again, since one respondent refused to mention his educational level, frequencies are reported instead of percentages. Table 4.1 shows the frequencies observed in this survey. The results were then compared to the 1991 census data. They can be seen in Table 4.1 as "expected frequencies." A nonparametric chi-square test revealed a statistically significant difference between the two sets of frequencies ($\chi^2 = 9.08$, $p < 0.05$). There were more respondents with "secondary" or "matriculation" level but fewer with "primary or below" level in this sample. The issue of sample representativeness is discussed in Chapter V.

TABLE 4.1

EDUCATIONAL ATTAINMENT OF THE 100 RESPONDENTS

Educational Attainment	Observed Frequency	Expected Frequency	Residual
Primary or Below	19	31.78	- 12.78
Secondary	58	49.77	8.23
Matriculation	9	5.34	3.66
Tertiary or Above	13	12.11	0.89
Total	99	99.00	/

[40] The percentages of those who never married, married, and separated/divorced/ widowed, between the ages of 15 and 64, were 36.27 percent, 60.34 percent, and 3.39 percent, respectively in 1991.

Finally, most of the households (56%) had $5,000 to $14,999 monthly income. Table 4.2 shows the monthly household income breakdown of the 100 respondents. Again, this result was compared to the census data and they were shown as "expected frequencies" in Table 4.2. A significant difference was discovered between these two sets of frequencies ($\chi^2 = 21.53$, $p < 0.01$). This finding is also discussed in Chapter V.

TABLE 4.2

MONTHLY HOUSEHOLD INCOME OF THE 100 RESPONDENTS

Monthly Household Income	Observed Frequency	Expected Frequency	Residual
$4,999 or Below	5	18.5	- 13.5
$5,000 - 9,999	27	31.7	- 4.7
$10,000 - 14,999	29	19.9	9.1
$15,000 - 19,999	18	11.1	6.9
$20,000 - 24,999	7	6.3	0.7
$25,000 - 29,999	6	3.6	2.4
$30,000 - 34,999	1	2.4	1.4
$35,000 or Above	7	6.5	.0.5
Total	100	100	/

General Attitudes towards Environmental Issues

Who Should be Responsible?

Government

Nearly all of the respondents (97%) thought that the government should take a "very important" (81%) or "somewhat important" (16%) role to promote the issue. Only 3 percent thought that it should take a "somewhat unimportant" role. No respondent thought that it should take a "very unimportant" role.

Moreover, 60 respondents believed that the territory government should take the most important role. Twenty-three and 11 respondents argued that it should take the second and third roles when compared with the other three parties. Only five thought that it should take the least important role. One respondent could not tell the differences of importance among the four selected parties.

Manufacturers

Most of the respondents thought that manufacturers should take a very important (57%) or a somewhat important role (36%) to advocate the issue. Five assigned a somewhat unimportant role to this party and only two claimed that its role is very unimportant.

Forty-one and 38 respondents assigned this party to the second and the third role, respectively. Seventeen claimed that it had the most important role and only three thought that it should take the least important role.

Retailers

Nearly half of the respondents (47%) assigned a somewhat important role to this party. Nineteen percent believed it should take a very important role and the others believed it should take a somewhat unimportant (28%) or even a very unimportant (6%) role to promote the issue.

Only one respondent believed this party should take the most important role. Five thought it should take the second important role and 18 ranked it to the third. Most of the respondents (75) assigned it the least important role.

The public

Similar to the government, nearly all of the respondents believed that the public should take a very important (52%) or somewhat important (45%) role to promote the issue. Only three respondents argued that the public should take a somewhat unimportant role.

In addition, 21 respondents thought that the public should take the most important role. Thirty ranked it the second and 32 arranged it to the third. Sixteen argued the public should take the least important role.

Figures 4.1 and 4.2 summarize these results diagramatically. Figure 4.1 shows the average scores in the important scales of the four parties. Figure 4.2 shows the frequencies of the rankings of the four parties.

FIGURE 4.1

AVERAGE PERCEIVED IMPORTANCE SCORES IN PROMOTING ENVIRONMENTAL PROTECTION BY THE FOUR PARTIES

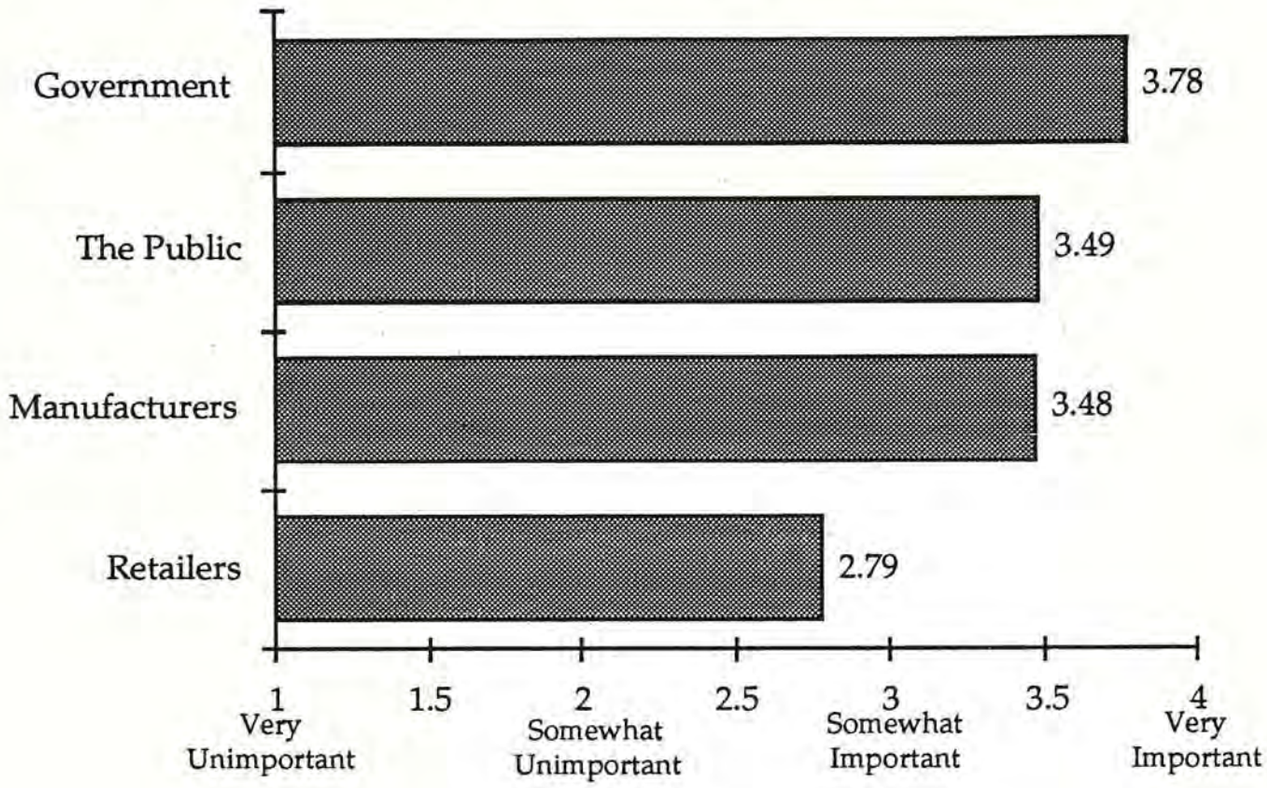
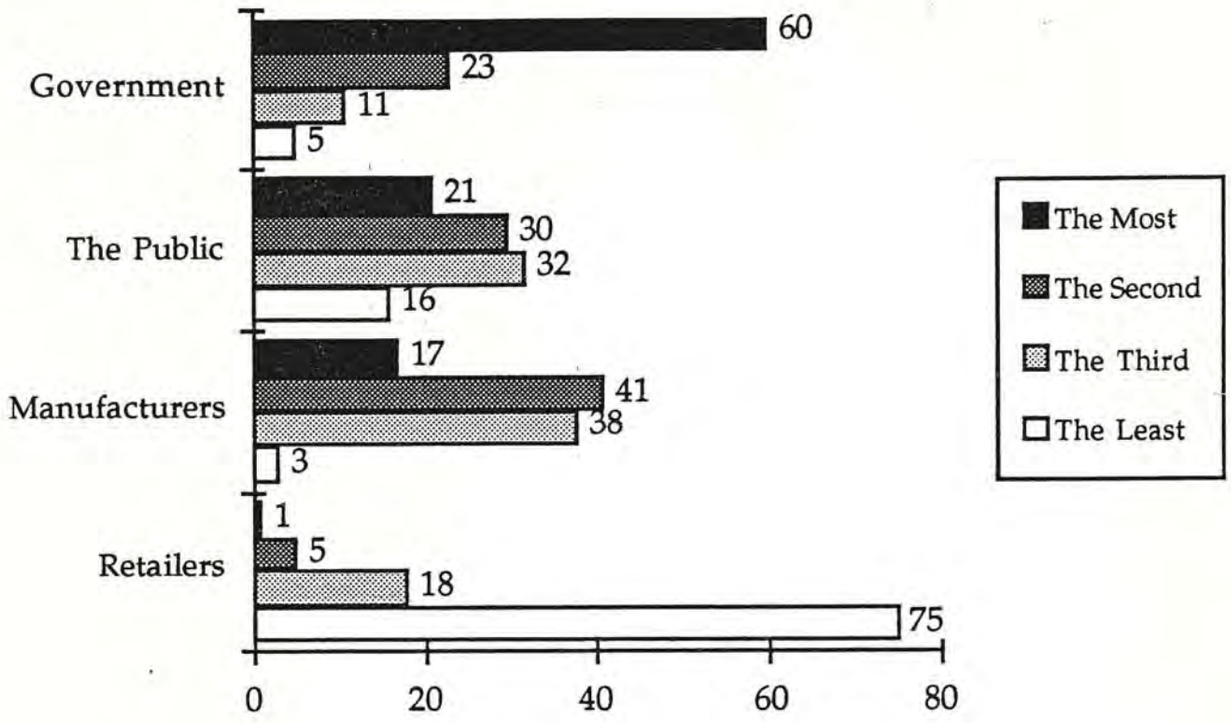


FIGURE 4.2

FREQUENCIES OF THE IMPORTANCE RANKINGS IN PROMOTING ENVIRONMENTAL PROTECTION BY THE FOUR PARTIES



Environmental Problems

Generally speaking, all the six selected environmental problems were perceived as significant issues. All of them got very high average scores. However, if only those "very significant" responses were concerned, differences may be observed among these problems. Figure 4.3 shows this particular result. However, some respondents thought that these issues were "very insignificant" or "somewhat insignificant." Table 4.3 reports the frequencies of these two responses of the six problems. (Eleven respondents did not know the term "ozone layer" and seven did not know what "greenhouse effect" is).

FIGURE 4.3

FREQUENCIES OF "VERY SIGNIFICANT" TOWARDS THE SIX ENVIRONMENTAL PROBLEMS

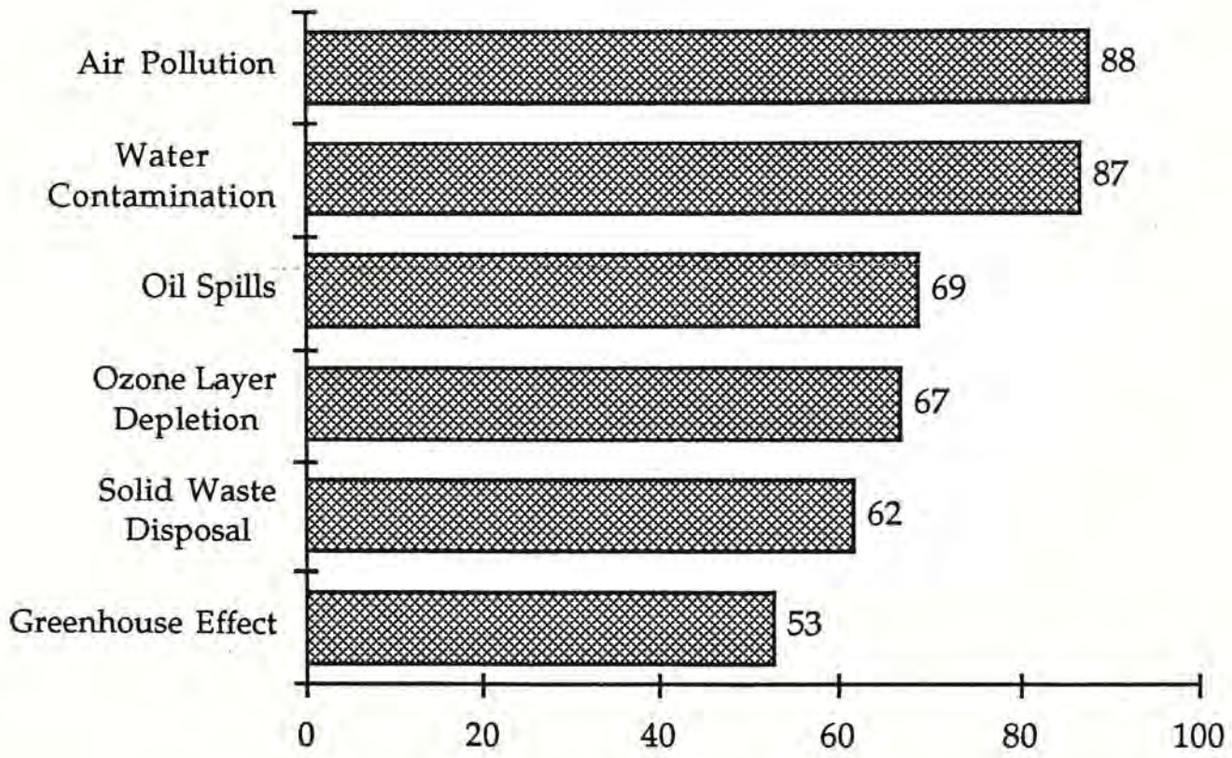


TABLE 4.3

FREQUENCIES OF "'VERY' AND 'SOMEWHAT' INSIGNIFICANT" FOR THE SIX ENVIRONMENTAL PROBLEMS

Environmental Problem	Very Insignificant	Somewhat Insignificant	Total
Oil Spills	2	8	10
Greenhouse Effect	3	6	9
Ozone Layer Depletion	3	3	6
Solid Waste Disposal	1	4	5
Water Contamination	1	1	2
Air Pollution	1	0	1

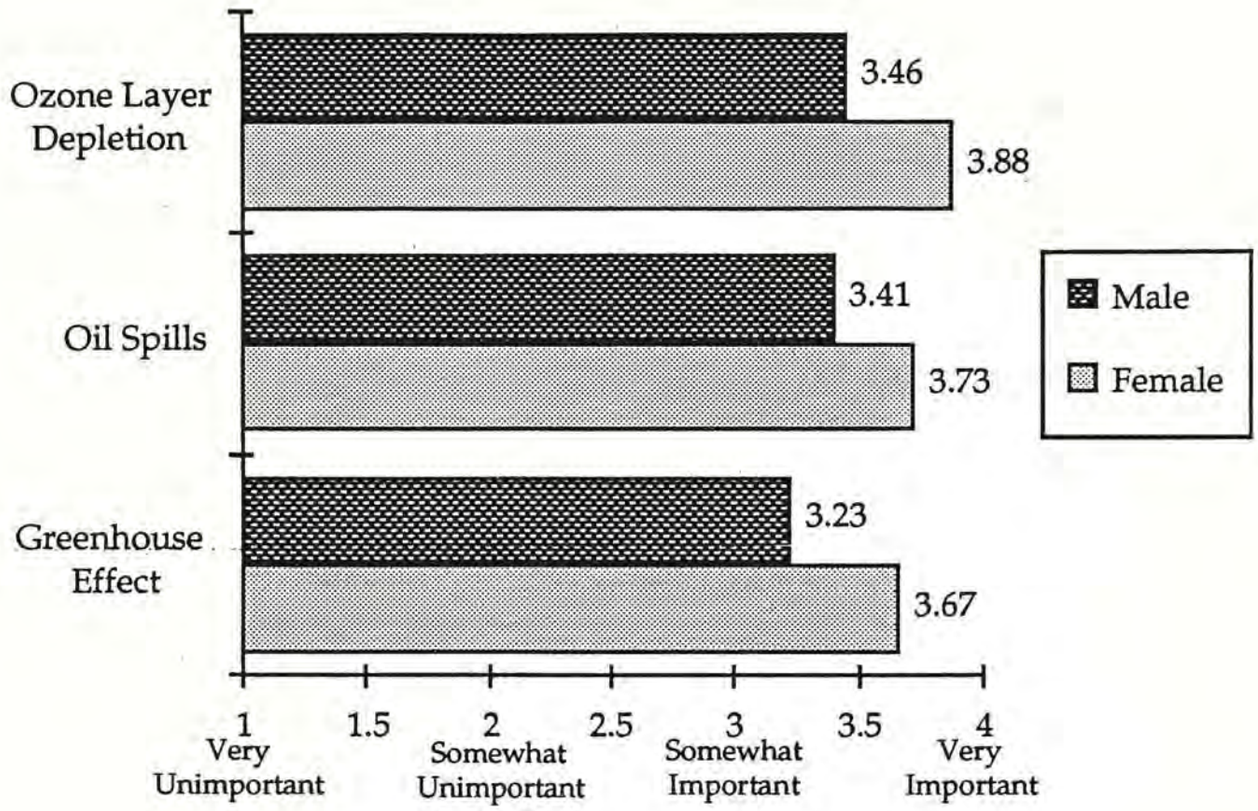
General Attitudes towards Environmental Issues by Demographics

Numerous Chi-square tests, t-tests, and analyses of variance (ANOVA) were conducted to see whether these general attitudes differed by sex, age, marital status, educational level, and household income.

Males had significantly lower scores on the three selected issues: ozone layer depletion ($t = 2.90$, $p < 0.01$), greenhouse effect ($t = 2.89$, $p < 0.01$), and oil spills ($t = 2.26$, $p < 0.05$). Figure 4.4 shows these findings diagramatically.

FIGURE 4.4

THREE SELECTED ENVIRONMENTAL PROBLEMS BY SEX



Differences in the perception of "greenhouse effect" were found among respondents of different age groups ($F = 4.23$, $p < 0.01$). Fisher's least significant difference (LSD) test revealed that this significant finding was produced by the differences between three pairs of age groups ($\alpha = 0.05$):

(1) The difference between 15-24 (mean = 3.81) and 25-34 (mean = 3.07).

(2) The difference between 25-34 (mean = 3.07) and 35-44 (mean = 3.68).

(3) The difference between 15-24 (mean = 3.81) and 55-64 (mean = 3.20).

Note that even those with the lowest mean score (25-34, 3.07) perceived the problem as somewhat significant rather than insignificant. Figure 4.5 shows the average perceived scores from different age groups towards this particular environmental problem.

FIGURE 4.5

AVERAGE PERCEIVED SIGNIFICANT SCORES OF "GREENHOUSE EFFECT" BY AGE GROUPS

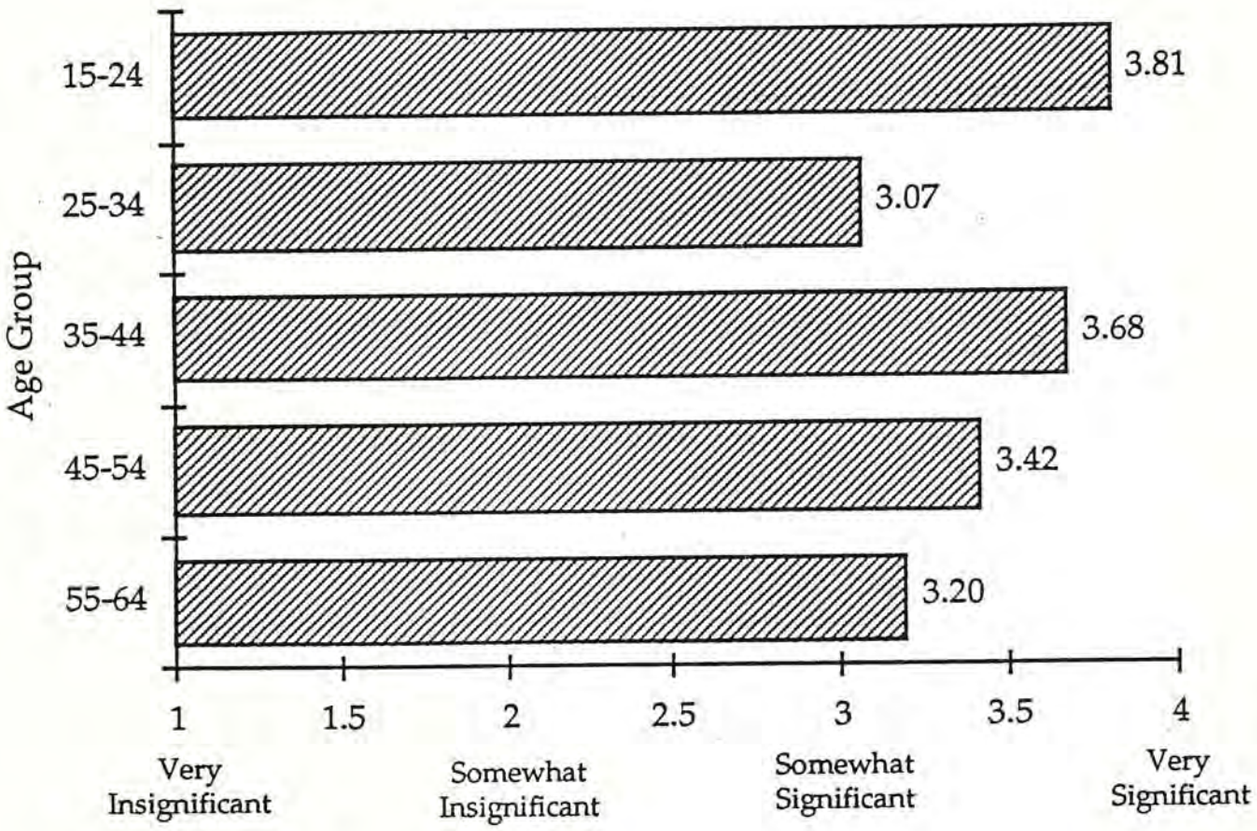


TABLE 4.4

MEAN SCORES OF GENERAL ATTITUDES TOWARDS GREEN PRODUCTS

The Four "P"s	The Question	Mean[41]	Rank
Price	(7)[42] You would be willing to pay more for an environmentally safe product.	2.26	6
	(3) The green version of a specific product should be sold at a higher price.	1.84	7
Promotion	(5) You believe the advertisements for green products.	2.78	4
	(2) Environmental labels on green products are trustworthy.	2.73	5
Package	(4) An environmentally safe *package* is at least as important as an environmental safe *product*.	3.14	2
Product	(1) You think that green products can contribute something to the environmental protection.	3.28	1
	(6) You would recommend green products to your friends.	2.84	3

[41] From 1: "disagree very much," to 4: "agree very much."

[42] Refers to question number on questionnaire.

General Attitudes towards Green Products

According to Table 4.4, respondents did not agree that green products should be sold at higher prices (mean = 1.84). However, their responses were not so negative when they were asked to pay more for green products (mean = 2.26). In fact, 42 respondents were willing to pay an average of HK$2.70 more if the environmentally "unsafe" substitute was worth HK$10. However, the range of this reported premium was quite large (S.D. = 2.54), from the minimum of HK$0.30 to the maximum of HK$15.00. A mode of HK$1.00 was observed with 13 responses.

Respondents had neutral to slightly positive attitudes towards promotion as well as green products themselves. Finally, they agreed that green packages are at least as important as green products.

A correlation matrix was then constructed to explore the relationships among these attitudes towards green products. Significant results are shown in Table 4.5. Results showed that the two questions in each of the three categories (price, promotion, and product) were highly correlated. In other words, it was justifiable to put them in the same category.

TABLE 4.5

CORRELATION MATRIX AMONG ATTITUDES TOWARDS GREEN PRODUCTS

The Statement	(1)	(2)	(3)	(4)	(5)	(6)
(1) You think that green products can contribute something to the environmental protection.	/	/	/	/	/	/
(2) Environmental labels on green products are trustworthy.	**0.31****	/	/	/	/	/
(3) The green version of a specific product should be should·at a higher price.	N.S.	N.S.	/	/	/	/
(4) An environmentally safe package is at least as important as an environmental safe product.	N.S.	N.S.	N.S.	/	/	/
(5) You believe the advertisements for green products.	**0.27****	**0.47****	N.S.	N.S.	/	/
(6) You would recommend green products to your friends.	**0.41****	**0.26***	N.S.	**0.33****	**0.21***	/
(7) You would be willing to pay more for an environmentally safe product.	N.S.	N.S.	**0.44****	N.S.	N.S.	**0.22***

Note: (1) "N.S." represented "Not Significant."

(2) Correlation with "*" were significant at 0.05 level (two-tailed). Those with "**" were significant at 0.01 level (two-tailed). All significant coefficients were positive in value.

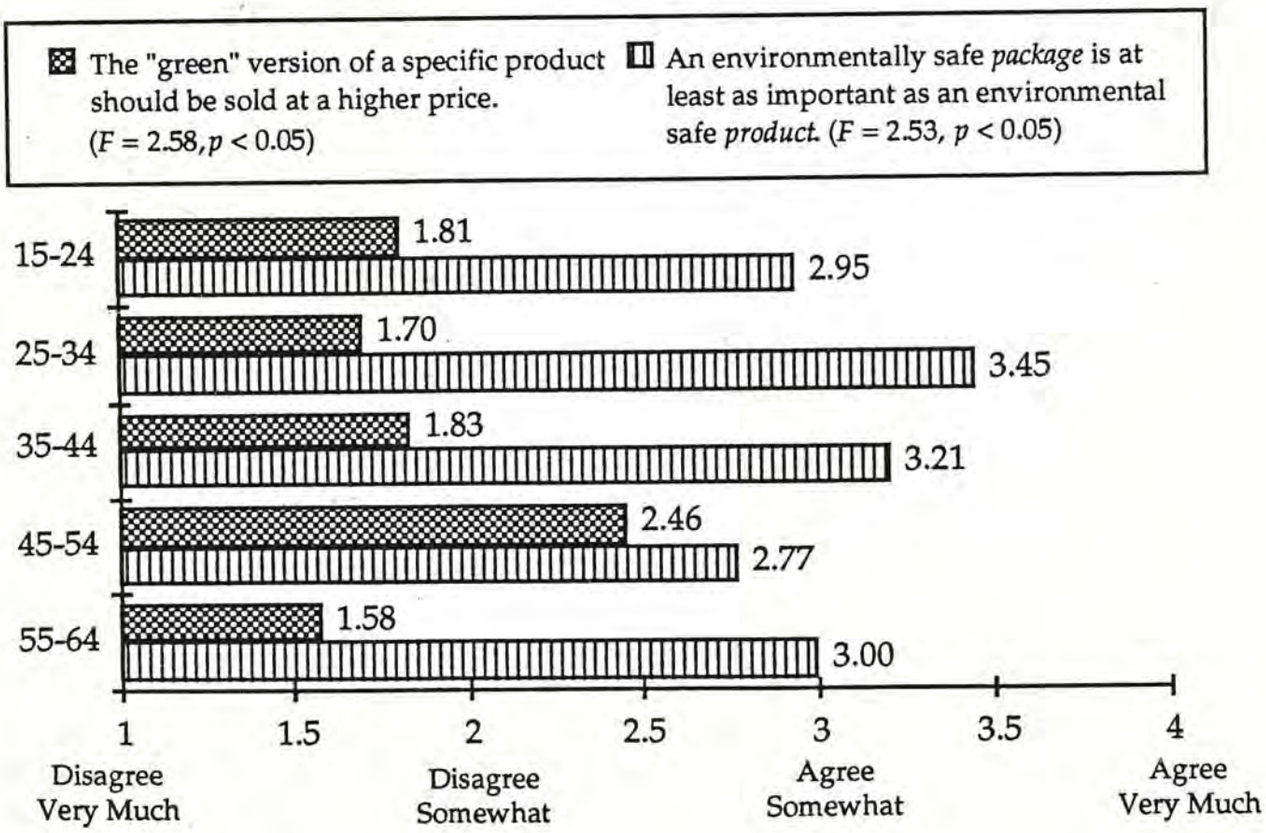
General Attitudes towards Green Products by Demographics

First, a significant lower rating was detected in male respondents (mean = 2.10) when they were asked if they would be willing to pay more for an environmentally safe product than their female counterparts (mean = 2.43; $t = 1.98$, $p < 0.05$). However, one should note that even for female respondents, neutral rather than positive responses were observed.

For two other questions, significant differences were found among different age groups. Figure 4.6 shows these two results on the same graph.

FIGURE 4.6

MEAN SCORES FROM DIFFERENT AGE GROUPS FOR TWO SELECTED QUESTIONS



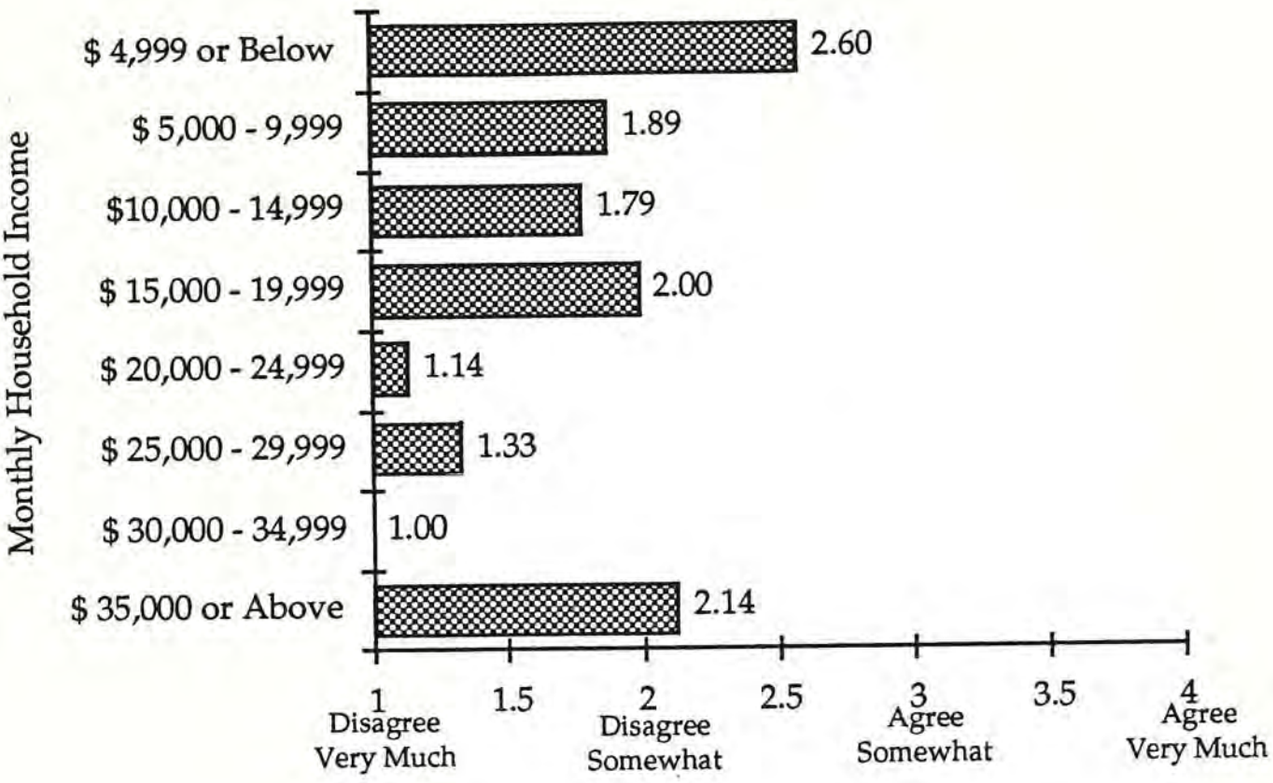
For the first question, on price ($F = 2.58$, $p < 0.05$), Fisher's LSD test ($\alpha = 0.05$) uncovered the fact that the finding was produced by a significant higher mean for the 45-54 age group (mean = 2.46). This particular mean score was higher than all the others. No other significant differences were observed.

For the second question, on package ($F = 2.53$, $p < 0.05$), the result was in fact produced by a significant higher mean of the 25 to 34 age group (mean = 3.45) than both the 15-24 group (mean = 2.95) and the 45-54 group (mean = 2.77). No further significant differences were observed.

Finally, monthly household income were found to be a significant factor affecting respondents' answers on question (3), "green product should be sold at a higher price" ($F = 2.31$, $p < 0.05$). This finding is pictured in Figure 4.7.

FIGURE 4.7

MEAN SCORES FROM DIFFERENT HOUSEHOLD INCOME GROUPS FOR THE PRICING QUESTION



Fisher's LSD test was then conducted. Significant differences were discovered. Those monthly income between $20,000 - 24,999 had a significantly lower mean score than those in the following income groups: $4,999 or below; $5,000 - 9,999; 15,000 - 19,999; and $35,000 or above. Unexpectedly, those in the lowest income group got the highest average score (mean = 2.60), which was significantly higher than three other income groups, those with $10,000 - 14,999; $20,000 - 24,999; and $25,000 - 29,999.

Ratings towards the Two Selected Products

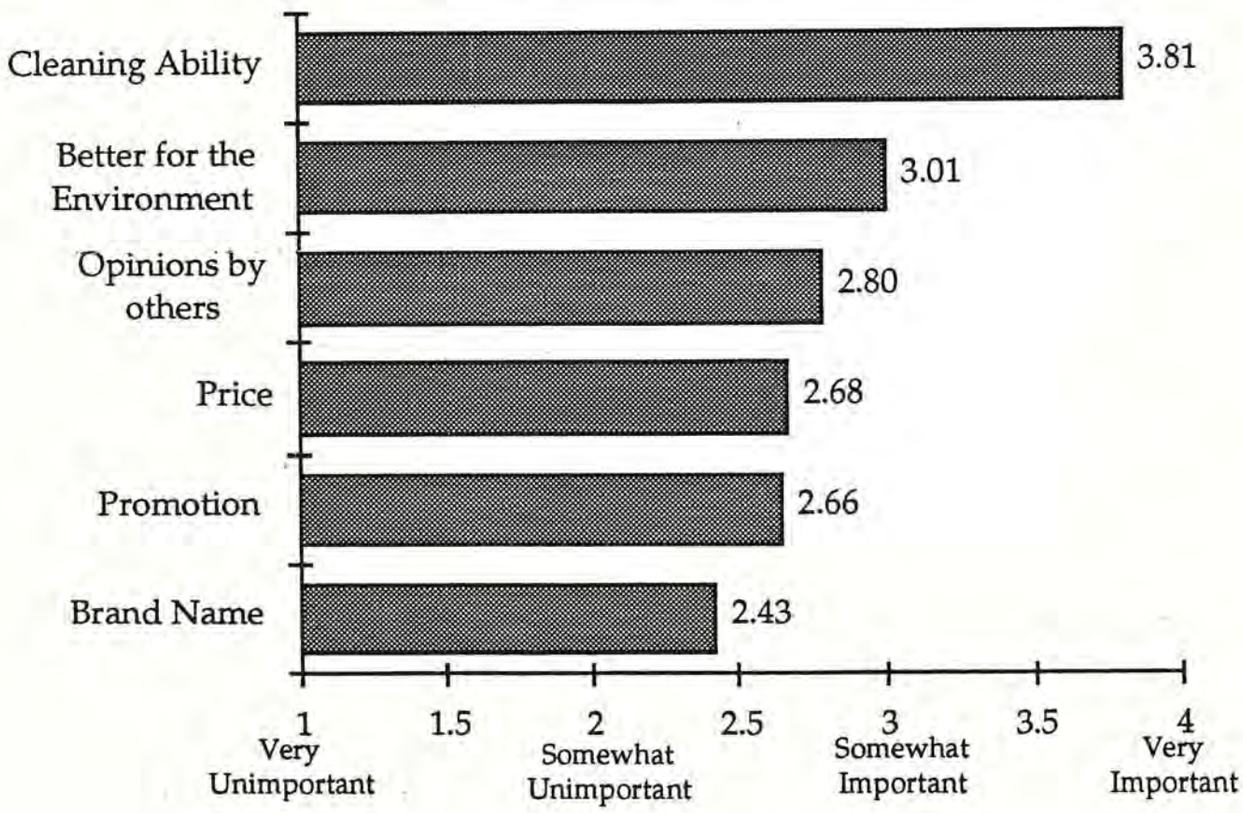
Washing Powder

Factors influencing purchases

As it is shown in Figure 4.8, the most important factor for washing powder purchases was the cleaning ability (mean = 3.81). The least important factor, on the average, was the brand name (mean = 2.43). For environmental concern, which came in second, most of the respondents claimed that it was a somewhat or very important factor (45 and 30 responses). Twenty-one argued that it was a somewhat unimportant factor and four thought that it was a very unimportant factor.

FIGURE 4.8

AVERAGE PERCEIVED IMPORTANCE SCORES OF FACTORS INFLUENCING PURCHASES OF WASHING POWDER

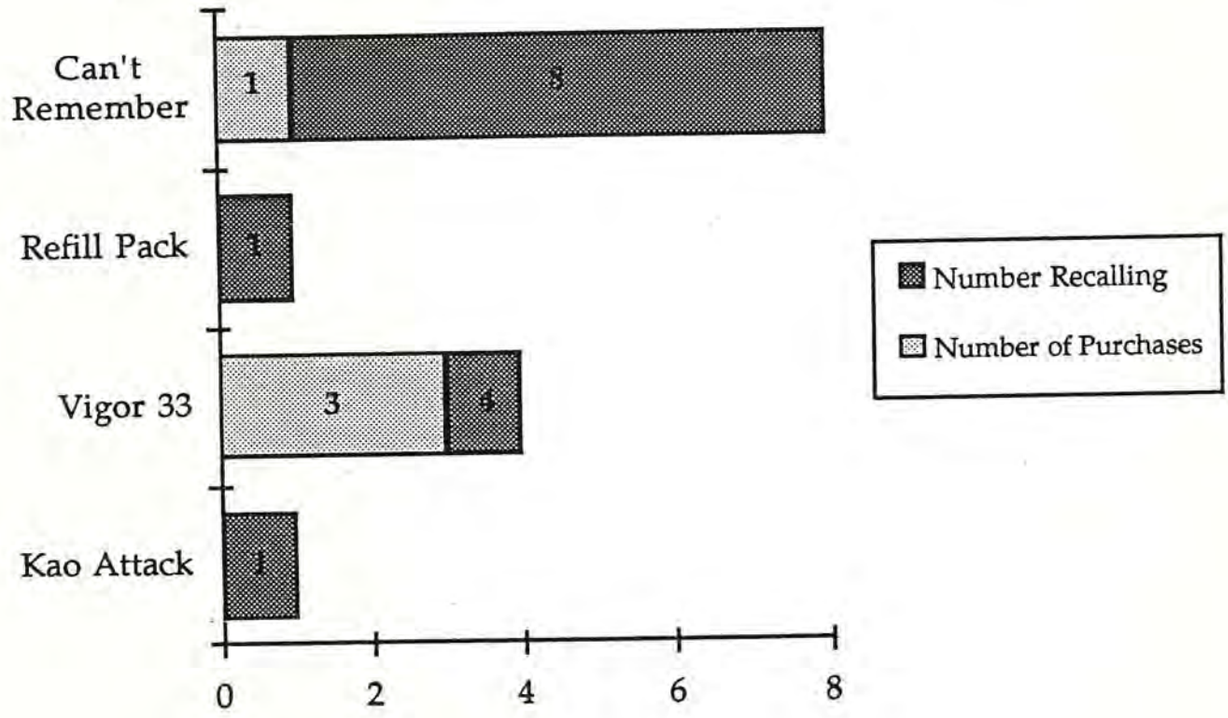


Green washing powder

When respondents were asked if they have ever heard of a brand of green washing powder, only 14 gave positive responses. Nine of them could not remember the names, and one said "refill pack."[43] Only five could give an existing brand name. Four claimed that they had bought this particular kind of washing powder before. This result is summarized in Figure 4.9.

FIGURE 4.9

RECALL AND PURCHASE OF GREEN WASHING POWDER



[43] "Refill pack" is actually a special package of Vigor 33, which is packed with recyclable paper instead of the tradition plastic container. Users can simply unpack this "refill pack" and put it into the old plastic container, or use it directly from this pack.

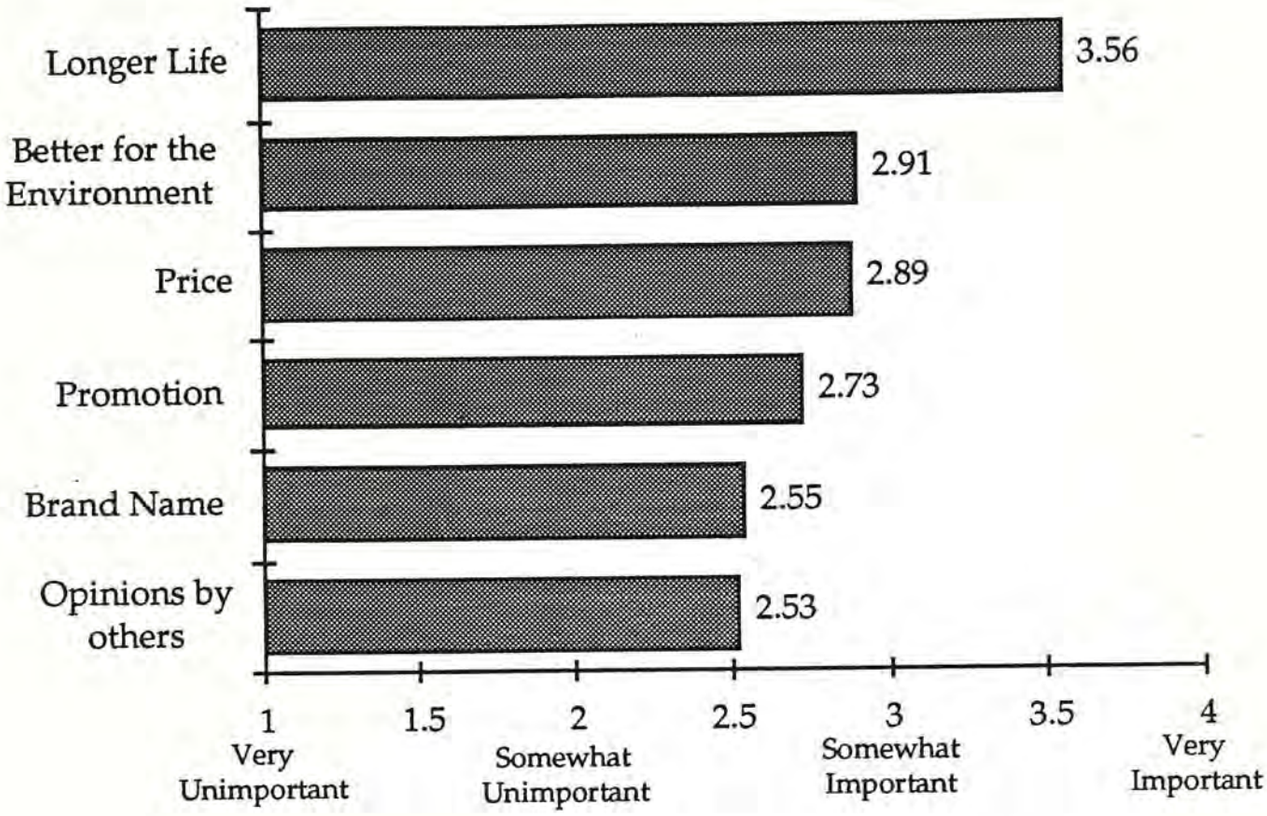
Batteries

Factors influencing purchase

A similar profile was observed when respondents were asked to rate the importance of factors in battery purchase. Again, the functional factor, "longer life," was perceived as the most important (mean = 3.56). On the other end of the continuum, "opinions by others" and "the brand name" were perceived as neutral. For the factor "better for the environment," again second, 68 respondents said that it was either a somewhat important (42 responses) or a very important (26 responses) factor for their purchases of batteries. Twenty-nine claimed that it was a somewhat unimportant factor, and three said that they would not considered this factor at all. Figure 4.10 shows the average scores of the various factors.

FIGURE 4.10

AVERAGE PERCEIVED IMPORTANCE SCORES OF FACTORS INFLUENCING PURCHASES OF BATTERIES

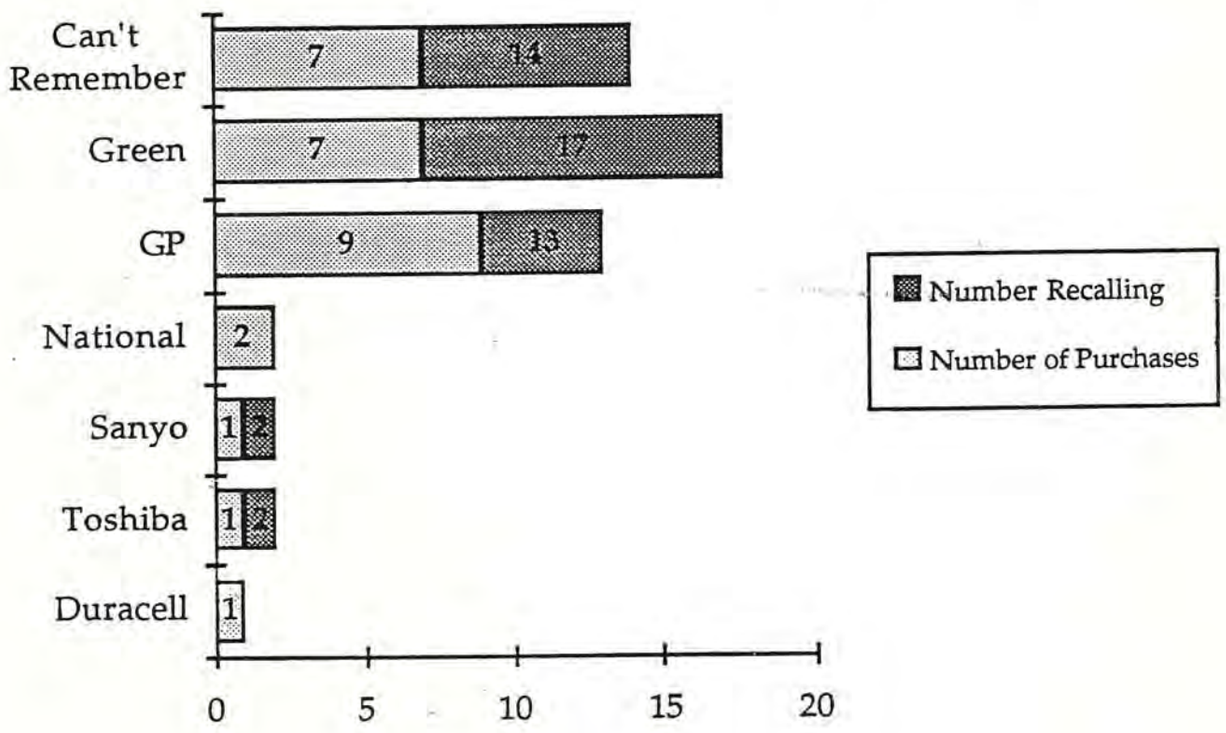


Green battery

The recall rate of the green battery was much more better than that of washing powder. Fifty-two respondents told us that they had heard of a green battery before. Most could only remember that "the battery was green in color," or even could not remember this point; 20 could name a valid product. More than that, 28 respondents had bought this kind of battery before, though 14 of them could not spell out the exact brand name. This result is summarized in Figure 4.11.

FIGURE 4.11

RECALL AND PURCHASE OF GREEN BATTERIES



Although similar responses seemed to be elicited from the two selected products, some differences existed. Six t-tests were conducted for the six pairs of means: price, better for the environment, the promotion, the cleaning ability/the longer life, opinions by others, and the brand name. Significant

differences were found in mean ratings for price (t = -2.06, p < 0.05), the cleaning ability/the longer life (t = 3.19, p < 0.01), and opinions by others (t = 3.01, p < 0.01). In sum, price was a more important factor for battery purchases. However, the functionality factor and others' opinions were more important for washing powder purchases. No significant difference was found for environmental concern.

Attitudes towards Green Products by Attitudes towards the Issues

By Importance Ratings and Rankings of the Four Parties

Regarding the importance ratings of the four parties, government, manufacturers, retailers, and the public, a correlation analysis was conducted. Expressly, a correlation matrix was obtained between the attitudes towards green products and the degree of importance placed on each of the four parties in regard to responsibility for the environment. Table 4.6 presents the significant relationships between the two sets of data.

TABLE 4.6

CORRELATION MATRIX BETWEEN ATTITUDES TOWARDS GREEN PRODUCTS AND IMPORTANCE RATINGS OF THE FOUR PARTIES

The Statement \ The Party	Importance of Each Party			
	Government	Manufacturers	Retailers	The Public
(1) You think that green products can contribute something to the environmental protection.	0.26**	N.S.	0.33**	0.23*
(5) You believe the advertisements for green products.	N.S.	N.S.	0.30**	N.S.
(6) You would recommend green products to your friends.	0.29**	0.35**	0.22*	0.35**
(7) You would be willing to pay more for an environmentally safe product.	N.S.	0.25*	N.S.	N.S.

Note: (1) Only those statements with significant findings were reported.

(2) "N.S." represented "Not Significant."

(3) Correlation with "*" were significant at 0.05 level (two-tailed). Those with "**" were significant at 0.01 level (two-tailed). All significant coefficients were positive in value.

In Table 4.6, a significant correlation implies the ratings of the two corresponding variables are in the same direction. For example, those who believed that government is important to promote environmental protection also thought that green products can contribute something to the environmental protection. Nevertheless, one should note that two correlated variables need not have a causal relationship.

By Environmental Problems

Table 4.7 presents another correlation matrix between the attitudes towards green products and attitudes towards the six environmental problems. Only those significant coefficients are presented.

TABLE 4.7

CORRELATION MATRIX BETWEEN ATTITUDES TOWARDS GREEN PRODUCTS AND ATTITUDES TOWARDS THE SIX ENVIRONMENTAL PROBLEMS

The Statement	The Problem			
	Air Pollution	Water Contamination	Ozone Layer Depletion	Oil Spills
(1) You think that green products can contribute something to the environmental protection.	N.S.	N.S.	**0.22***	N.S.
(3) The green version of a specific product should be sold at a higher price.	**-0.21***	**-0.20***	N.S.	N.S.
(5) You believe the advertisements for green products.	N.S.	N.S.	N.S.	**0.26***
(6) You would recommend green products to your friends.	N.S.	N.S.	**0.22***	N.S.

Note: (1) Only those statements and problems with significant findings were reported.
(2) "N.S." represented "Not Significant."
(3) All coefficients were significant at the 0.05 level (two-tailed). Some of them were negative in value.

Interestingly, two negative correlation coefficients were observed. They could be explained by high frequencies in negative ratings (i.e. "disagree very much" or "disagree somewhat") of statement (3), and high frequencies in positive ratings (i.e. "very significant" or "somewhat significant") of air

pollution and water contamination. It is not necessary that those who were willing to pay more for green products viewed the two problems as insignificant.

Attitudes towards Green Products by Ratings towards the Two Selected Products

Washing Powder

First, a correlation analysis was conducted to study the underlying relationships between respondents' attitudes towards green products and their ratings towards the importance of various purchasing factors of washing powder. Table 4.8 summarizes this specific finding.

Then t-tests were conducted to examine if the attitudes of those who had heard or bought any brands of green washing powder were different from those who had not. One significant result was noticed. For the four respondents who had tried a green washing powder before, they all agreed very much that "green products can contribute something to the environmental protection" (mean score = 4.00). However, those who had heard of the product but never tried it before (10 respondents) only agreed somewhat to the statement (mean score = 3.10). This difference was significant at the 0.01 level (t = 5.01).

TABLE 4.8

CORRELATION MATRIX BETWEEN ATTITUDES TOWARDS GREEN PRODUCTS AND RATINGS OF THE IMPORTANCE OF VARIOUS PURCHASING FACTORS FOR WASHING POWDER

The Statement	The Factor			
	Better for the Environment	The Promotion	Opinions by Others	The Brand Name
(1) You think that green products can contribute something to the environmental protection.	0.33**	N.S.	N.S.	N.S.
(2) Environmental labels on green products are trustworthy.	N.S.	N.S.	N.S.	0.23*
(4) An environmentally safe package is at least as important as an environmental safe product.	N.S.	N.S.	0.26**	N.S.
(5) You believe the advertisements for green products.	0.23*	0.21*	0.20*	N.S.
(6) You would recommend green products to your friends.	0.36**	N.S.	0.30**	N.S.

Note: (1) Only those statements and factors with significant findings were reported.

(2) "N.S." represented "Not Significant."

(3) Correlation with "*" were significant at 0.05 level (two-tailed). Those with "**" were significant at 0.01 level (two-tailed). All significant coefficients were positive in value.

Batteries

Similarly, a correlation analysis was conducted to study the underlying relationships between respondents' attitudes towards green products and their ratings towards the importance of various purchasing factors of battery. Table 4.9 summarizes this finding.

TABLE 4.9

CORRELATION MATRIX BETWEEN ATTITUDES TOWARDS GREEN PRODUCTS AND RATINGS OF THE IMPORTANCE OF VARIOUS PURCHASING FACTORS FOR BATTERIES

The Statement	The Factor				
	Better for the Environment	The Promotion	The Longer Life	Opinions by Others	The Brand Name
(1) You think that green products can contribute something to the environmental protection.	0.28**	N.S.	N.S.	N.S.	N.S.
(4) An environmentally safe package is at least as important as an environmental safe product.	N.S.	N.S.	0.21*	0.29**	0.25*
(5) You believe the advertisements for green products.	N.S.	0.21*	N.S.	0.22*	N.S.
(6) You would recommend green products to your friends.	0.43**	0.23*	N.S.	0.23*	N.S.

Note: (1) Only those statements and factors with significant findings were reported.

(2) "N.S." represented "Not Significant."

(3) Correlation with "*" were significant at 0.05 level (two-tailed). Those with "**" were significant at 0.01 level (two-tailed). All significant coefficients were positive in value.

In addition, several t-tests revealed that those who had heard of the green battery agreed somewhat that green products can contribute something to the environmental protection (mean = 3.13), while those who had not gave significant higher (t = -2.08, $p < 0.05$) ratings (mean = 3.44). It may be due to the negative image of green battery. Some local articles have stated that green batteries are not that "green" in a sense that they may use up to 50 times of energy in the production process than their "un-green" counterparts.[44] If respondents learned the product from these sources, they might generalize this negative perception to other green products.

Likewise, the 28 respondents who had bought green batteries before gave significant lower (t = -2.20, $p < 0.05$) ratings (mean = 1.54) to the statement "green product should be sold at a higher price," than the 24 respondents who had heard of the brands but never bought them before (mean = 1.96). Again, during the research process many respondents claimed that green batteries were just the same as other batteries, in terms of the functional dimension. They do not have longer life or more steady current. It might be the reason why "green battery buyers" disagreed with higher prices.

Nevertheless, the green battery buyers claimed that they would recommend green products to their friends (mean = 3.07) than the nonbuyers counterpart (mean = 2.63; t = 2.10, $p < 0.05$).

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[44] "Are Environmental Labels Trustworthy?" Choice Magazine, August 1992, pp. 33-39.

CHAPTER V

SUMMARY AND IMPLICATIONS

Summary of Findings

Major Findings

Although an environmentally concerned segment did exist, its proportion to the total population was not as high as that of the United States. First, a substantial portion of the respondents are not prepared to pay more for an environmentally friendly product. Except for those aged between 45 to 54, and with $4,999 or below household income, most respondents did not agree that green products should be sold at higher prices (the percentages of "disagree" for the three groups are 54%, 40%, and 87%, respectively). Most of these "not-willing-to-pay" were individuals of $20,000 to $25,000 monthly household income. It seems that there is an inverted-U relationship between monthly household income and the willingness to pay more for green products. In other words, those who have either very high or very low incomes are willing to pay more for green products.

One possible reason is the high rental rate in Hong Kong. For those who earned less than $5,000 a month, most probably they were living in public housing with very low rental rates. For those who earned $35,000 or above, they should have enough money to pay for their apartments. Relatively speaking, those in between might have lower disposable incomes. Thus, they may have less to spend on green products.

Regarding the promotional dimension, respondents tended to give neutral responses. However, those who believed retailers should take a more important role believed green advertisements more. At a glance, it was not an intuitively appealing result, since most of the advertisements in Hong Kong were produced by manufacturers, but not retailers. However, retailers were often portrayed as "those who sell products." Thus, they might be associated with the promotional issue, especially environmental labels on green products (Question 2). Moreover, this group also regarded the oil spills issue as more significant. As there were no major oil spills in the territory, this issue must have been learned from the mass media. An underlying reason might be that this group of people paid more-than-average attention to the mass media. Again, further studies are needed to verify this hypothesis.

On the other hand, those who trusted environmental labels on green products regarded "brand name" as an important factor in the buying of washing powder. Those who believed the advertisements for green products regarded the "environmental friendliness," "opinions by others," and "the promotion" as important factors in buying of washing powder. In purchases of batteries, "opinions by others" and "promotion" were important factors for those who believed green advertising. Therefore, roughly speaking, there were two segments of customers. One group believed "brand name" as well as product information printed on products. Advertisements had lesser effect on this group. The other group, however, believed promotional activities and they might be those "brand switchers." Advertisements had more salient effect on this group.

Regarding the package dimension, those aged 25 to 34 valued green packages more than those between 15 to 24 or those between 45 to 54.

Moreover, this group also valued others' opinions in buying of washing powder. In buying of battery, longer life, brand name, and others' opinions were rated as important factors.

Finally, regarding the product dimension, respondents who thought that green products could contribute to the issue also thought that government, retailers, and the public were more important parties in promoting the issue. Those who would recommend green products to friends viewed all the four parties as important. Actually, this group of respondents could be regarded as environmentally conscious individuals. Therefore, it would not be surprising to see that they wanted to get the whole society involved in the issue.

Other Findings

Except retailers, all the other three parties were seen as important to promote the issue. Respondents might think that retailers only needed to sell products. Thus, it was not their business to promote the issue. Government received the highest emphasis because the public believed that it should take the leading role. Manufacturers and the public, on the other hand, could take a more reactive role to the issue.

Air pollution and water contamination received highest attentions since they are "real" problem in Hong Kong now. The current controversial promotion about these two problems also raised the attention levels of the public. Relative remote issues like ozone layer depletion, greenhouse effect, and oil spills were viewed as less significant as they did not directly affect the life in the territory. Moreover, the interesting finding that males gave lower ratings to these three issues might be due to the fact that there are relatively

fewer full-time working females in Hong Kong. Possibly they had more time to watch television and become sensitized.

Furthermore, higher rates of recall and previous purchases of green batteries, as compared to washing powder, might be the result of the different levels of promotional activities of the two selected products. By observation in supermarkets, the author found that there were only two brands of washing powder using the green appeal.[45] However, all the four major brands of battery had at least some green labels on the product.[46] Still environmental concern was *not* a more significant factor in battery buying than washing powder purchases. In other words, green promotion seemed to have no significant effect on purchasing factors of the promoted product.

Limitations

Sample bias

As mentioned in Table 4.1 and Table 4.2 in Chapter IV, some demographic characteristics of the sample were indeed different from that of the population's. In fact, it is a common problem faced by researchers to cover those lower educated and those in lower income groups. They are less willing to be cooperative. Future studies may focus on the two groups to discover if their attitudes towards green products are different from their counterparts.

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[45] The two brands are Vigor 33 (威潔) and Super Powder (霸力).

[46] The four major brands of batteries in Hong Kong are Duracell (金霸王), Energizer (勁量), Eveready (永備), and Gold Peak (超霸).

Limited product category

There were only two selected product categories in this research. As indicated in past research, attitudes towards green products may be subject to variations from product to product. However, if one wants to generalize the results to other product categories, one should pay attention to the product features as well as the level of green attitudes towards that specific product categories.

"Socially correct" answers

Social desirability is the tendency of respondents to provide socially acceptable, or desirable answers to those socially sensitive questions. They prefer the socially acceptable choice even if in reality, they are at the opposite end of the spectrum. It is a common problem of research concerning social desirability attitudes.

There might be a tendency for respondents to answer in a way they thought they should be answering in this study. They would try to guess the purpose of the study, and the "socially correct" (or, even, in today's terminology, "politically correct") answer to each question. One should be cautious about scores which are exceptionally high, for example, the attitudes towards environmental problems in this study. One method to measure the bias is to use behavioral measurements as a check.

Implications for Marketers

Manufacturers

As shown in Figure 4.1, respondents tended to think that manufacturers have a responsibility of promoting the issue. Therefore, it may be the time for them to incorporate the green concept into their products as well as their marketing activities. People are expecting them to do something for the environment. Although at this moment people are still not so sensitive to the issue, the trend is obvious and it is better to take some proactive actions now.

Retailers

For retailers, however, it may be premature to promote the concept. Nevertheless, as socially responsible organizations, they may want to start to take some preemptive action on the issue. In fact, some retailers have already started to "sell" the green concept to their customers. One of the retail giants in the territory, Park'N Shop, has promoted the issue for years. It may also be the time for other retailers to "think green" before it is too late.

APPENDIX 1

A LIST OF SOME COMMONLY USED TERMS USED IN CONNECTION WITH GREEN PRODUCTS[47]

Biodegradable

If material can be degraded naturally by germs, it is said to be biodegradable. Theoretically, a biodegradable product can help to reduce solid waste. Nevertheless, different materials need different times and conditions to be fully degraded. Thus, merely stating that a product is biodegradable is not enough.

Environmentally Friendly

There is no clear definition for this term. Whether the product is "friendly" to the environment can be considered under different viewpoints. For instance, even if a product will not create any solid waste, polluted air, or contaminated water at the stage of production, the energy or water it uses up can still affect the environment. Moreover, when it turns into rubbish after the consumption, it still needs a place for further processing.

No Animal Testing

Body care products often use animals as subjects in the testing process, so as to study the safety levels or methods of use for human beings. However, this kind of experimentation is usually objected to by animal protection

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[47] The definitions of these terms are translated from the same article as footnote 44.

organizations. In order to respect the rights of animals, some manufacturers have abandoned animal testing. However, without animal testing, there must be some other type of research which can back up the safety level of the product.

Ozone Friendly

This term usually appears on the packing of sprays and Polystyrene plastic products, and mainly relates to CFCs.[48] Although nowadays many products have turned to use other chemicals such as Trichloroethane and Hydrocarbons, these chemicals can still create mist above the ground. Therefore, even though the product does not contain CFCs, it does not mean that it is totally friendly to the environment.

PH Neutral

This term means that the chemical matter of the product has a neutral pH value. If a detergent has a neutral pH value, this can lessen the harm to the skin. However, this does not have a direct relation to environmental protection (although it surely relates to the broader issue of "health"-consciousness, part of the broader "nature-oriented" syndrome).

Phosphate Free

Phosphates are a useful substance in the laundry. However, letting too many phosphates flow into the sea will multiply the amount of the seaweed,

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[48] CFCs (chlorofluorocarbons) is a family of chemicals which is very stable in the lower atmosphere, get broken down by the ultraviolet rays, releasing chlorine, which destroys the protective ozone layer. Johnson, Otto. (Ed.) Information Please Almanac, Atlas & Yearbook 1993. (46th Ed.). Houghton Mifflin Company, 1992, p. 579.

which can lead to eutrophication.[49] Moreover, growth of seaweed can take away oxygen in the sea which can cause harm to other living organisms. Some countries such as Ireland, the US, and Canada have already restricted the use of phosphates in manufactured products.

Recyclable

Whether a product can be recyclable depends heavily on the availability of technology. For instance, some plastic bags which bear this label may be recyclable in their country of origin since they have such technology there. However, if the technology required is not available locally, and the recycled product is not suitable for the local market, its recyclability is useless.

Recycled

This term indicates that the product is made from recycled materials. However, if some materials are merely excess materials which haven't been consumed, they should not be claimed as recycled materials. Therefore, when encountering the label "100 percent recycled paper", one has to know whether it is really made from second-hand waste paper or solely from first- hand material.

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[49] According to the Webster's Third New International Dictionary, 1981, eutrophication means "a lake rich in dissolved nutrients but frequently shallow and with seasonal oxygen deficiency."

APPENDIX 2

"GREEN" SEGMENTS IN THE UNITED STATES

The JWT Survey[50]

Die-Hard "Greener-Than-Greens"

The "greener-than-greens" tend to be better-educated older females with high incomes and liberal orientation, who say they're willing to pay more for environmentally friendly products. They account for 23 percent of the US population

Somewhat-Concerned "Greens"

The "greens" are willing to make some sacrifices for the environment. They account for 59 percent of the US population.

"Light Greens"

The "light greens" are concerned but unwilling to sacrifice. They account for 15 percent of the US population.

"Un-Greens"

The "un-greens" tend to be younger, apolitical, less well-educated males, who earn less money, won't buy recycled products and say they "live for today." They account for 3 percent of the US population.

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[50] Same reference as footnote 19.

The Roper Survey[51]

"True-Blue Greens"

True-blue greens account for 11 percent of the US population. They are the most affluent and the most involved in pro-environment practices. They're willing to pay an average of 7.4 percent more for the eight green products (recycled paper products, less-polluting gasoline, etc.) featured in the poll.

"Greenback Greens"

"Greenback greens" also constitute 11 percent of the population. They are the youngest group and the biggest environmental spenders, saying they'd be willing to pay 19.6 percent more for environmentally friendly products.

"Sprouts"

"Sprouts," a swing group, account for 26 percent of the population and display both pro and con attitudes about the environment. On average, they say they'd be willing to pay 4.8 percent more.

"Grousers"

"Grousers" make up 24 percent of the whole. They aren't very involved in environmental activities, mainly because they say others aren't either. They'd be willing to pay 4.4 percent more.

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[51] Same reference as footnote 20.

"Basic Browns"

"Basic browns" are the final 28 percent of the population. As the category title indicates, they don't believe individuals can make a difference in improving the environment, and they aren't interested in making an effort. Still, they say they'd spend 3.1 percent more, roughly the rate of inflation, for green products.

The Simmons Survey[52]

"Premium Greens"

Twenty-two percent of the adult population, 40 percent of whom have household incomes exceeding $50,000 annually. Sixty-eight percent of them recycle five or more items, and 55 percent see boycotting environmentally unfriendly companies as the right thing to do. They're willing to spend more for environmentally friendly products.

"Red, White, and Greens"

As committed as the previous group, but more self-centered in terms of protecting their own turf more than everyone else's. A male-dominated group, 22 percent have college educations, but compared to Premiums, only 33 percent have household incomes over $50,000 annually, and only 37 percent recycle five or more items regularly. In addition, they're politically active and support nuclear power.

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[52] Same reference as footnote 21.

"No-Cost Ecologist"

At 28 percent of the population, Simmons found this group more in the "do-as-I-say-but-not-as-I-do" category when it came to environmentally friendly behavior. Most don't participate in recycling at all, although they say they do or say they believe in it. Their incomes are lower than the previous clusters.

"Convenient Greens"

This 11 percent of the population will be green, and will pay more to be, if marketers make it convenient for them. They're willing to pay more money for taxes and environmental solutions. Like "no-cost ecologists," they talk a better game than they play.

"Unconcerneds"

As Simmons says, "the name says it all." They comprise 19 percent of the population.

APPENDIX 3

ENGLISH VERSION OF THE QUESTIONNAIRE

Questionnaire Number :_____ [1-3][53]

Interviewer Number : _____ [4]

Hello, my name is _____. I am a student of The Chinese University of Hong Kong. I am conducting a survey about the consumer products and the environment. The survey will only take a few minutes. (Do not pause)

Section I

Can you tell me if there is a (male / female) between the age of _____ to _____ in your home now?

If Yes, continue. If No, say thanks to him / her and end the interview.

Can you ask him / her to pick up the phone?

If Yes, continue. If No, ask for another male / female between the age of _____ to _____ until no one is available now. Say thanks to him / her and end the interview.

---

[53] Numbers in [square brackets] are for coding purposes only.

Section II

First of all, I'd like to ask you about your opinions on products and the environment, and whether you agree or disagree with some statements. How about this statement:

___ (1) You think that "green" products[54] can contribute something to the environmental protection. [5]

Do you agree or disagree the statement?

Do you agree / disagree very much or somewhat?

Mark "1" if the answer is "Disagree Very Much," "2" if the answer is "Disagree Somewhat," "3" if the answer is "Agree Somewhat," and "4" if the answer is "Agree Very Much." The same procedure is applied for all the questions in this section.

___ (2) Environmental labels on "green" products are trustworthy . [6]

___ (3) The "green" version of a specific product should be sold at a higher price. [7]

___ (4) An environmentally safe *package* is at least as important as an environmental safe *product*. [8]

___ (5) You believe the advertisements for "green" products . [9]

___ (6) You would recommend "green" products to your friends. [10]

___ (7) You would be willing to pay more for an environmentally safe product. [11]

If he/she disagrees the statement, skip to Section III.

(8) How much more are you willing to pay, if the environmentally "unsafe" product is worth $10? _____ [12-14]

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[54] In Cantonese, the wording "環保產品," that is "environmental protection products," are used instead of the direct translation of "green" product.

Section III

I am now going to read you some other statements. Please indicate whether it is an important or unimportant reason for your purchase of washing powder.

____ (9) Price [15]

Is it an important or unimportant reason?

Is it a very important / unimportant or somewhat important / unimportant reason?

Mark "1" if the answer is "Very Unimportant," "2" if the answer is "Somewhat Unimportant," "3" if the answer is "Somewhat Important," and "4" if the answer is "Very Important." The same procedure is applied for all the questions in this section.

____ (10) Better for the environment [16]

____ (11) The promotion [17]

____ (12) The cleaning ability [18]

____ (13) Opinions by other people (e.g. family members or friends) [19]

____ (14) The brand name [20]

____ (15) Have you ever heard of a brand of washing powder that is advertised as being environmentally-friendly? [21]

If "Yes", continue. If "No", skip to Question (19)

(16) Can you name one of these brands? _____ [22-23]

____ (17) Have you ever bought this kind of washing powder? [24]

If "Yes", continue. If "No", skip to Question (19)

(18) Which brand was it? _____ [25-26]

Now, I am going to read you some similar statements. Please indicate whether it is an important or unimportant reason for your purchase of *battery*.

____ (19) Price [27]

Is it an important or unimportant reason?

Is it a very important / unimportant or somewhat important / unimportant reason?

____ (20) Better for the environment [28]

____ (21) The promotion [29]

____ (22) The longer life [30]

____ (23) Opinions by other people (e.g. family members or friends) [31]

____ (24) The brand name [32]

____ (25) Have you ever heard of a brand of battery that is advertised as being environmentally-friendly? [33]

If "Yes", continue. If "No", skip to Question (29)

(26) Can you name one of these brands? _____ [34-35]

____ (27) Have you ever bought this kind of battery? [36]

If "Yes", continue. If "No", skip to Question (29)

(28) Which brand was it? _____ [37-38]

Section IV

People talk a lot these days about whose job it is to promote environmental protection. For each of the groups that I'll read to you, please tell me whether you think that it should take an important or unimportant role to promote the issue.

____ (29) Government [39]

Should it take an important or unimportant role?
Should it take a very important / unimportant or somewhat important / unimportant role?

Mark "1" if the answer is "Very Unimportant," "2" if the answer is "Somewhat Unimportant," "3" if the answer is "Somewhat Important," and "4" if the answer is "Very Important."

____ (30) Manufacturers [40]

____ (31) Retailers [41]

____ (32) The Public [42]

Then among the four parties I've read to you, who do you think should it take the most important role? The second? How about the least important party?

Mark "1" next to the most important party. Mark "2" next to the second important party. Mark "4" next to the least important party. Then mark "3" to remaining party.

____ (33) Government [43]

____ (34) Manufacturers [44]

____ (35) Retailers [45]

____ (36) The Public [46]

Finally, I will read you some environmental problems. Please indicate whether you think it is a significant or insignificant issue.

____ (37) Solid Waste Disposal [47]

Do you think that it is a significant or insignificant issue?
Do you think that it is a very significant / insignificant or a somewhat significant / insignificant issue?

> *Mark "1" if the answer is "Very Insignificant," "2" if the answer is "Somewhat Insignificant," "3" if the answer is "Somewhat Significant," "4" if the answer is "Very Significant," and "5" for "Don't Know." The same procedure is applied to all the issues.*

____ (38) Air Pollution [48]

____ (39) Water Contamination [49]

____ (40) Ozone Layer Depletion (Ozone layer no longer able to filter out most of the ultraviolet rays) [50]

____ (41) Greenhouse Effect (The accumulation of CO_2 makes the earth getting warmer) [51]

____ (42) Oil Spills [52]

Section V

In this final section I will ask you some classification data. All these data will only be used in the statistical analysis and will be strictly confidential.

Record the sex of the respondent.

____ (43) The sex of the respondent. [53]

1) Male
2) Female

____ (44) I am going to read you some age ranges. Please stop me when I've reached the age-range you're in. [54]

1) 15 - 24
2) 25 - 34
3) 35 - 44
4) 45 - 54
5) 55 - 64

____ (45) What is your marital status? [55]

1) Never married
2) Married
3) Separated / divorced / widowed

____ (46) Again, I'm going to read some educational levels. Please stop me if yours is reached. [56]

1) Primary or below
2) Secondary
3) Matriculation
4) Tertiary or above

___ (47) What is your monthly household income? [57]

1) $ 4,999 or below
2) $ 5,000 - 9,999
3) $ 10,000 - 14,999
4) $ 15,000 - 19,999
5) $ 20,000 - 24,999
6) $ 25,000 - 29,999
7) $ 30,000 - 34,999
8) $ 35,000 or above

This is the end of the questionnaire. Thank you very much for your time and cooperation.

APPENDIX 4

CHINESE VERSION OF THE QUESTIONNAIRE

問卷編號：_____ [1-3]

訪問員編號：_____ [4]

你好，我叫_____。我是香港中文大學的學生。現在正進行一個有關消費產品及環境的調查。整個調查只需數分鐘。（不要停頓）

第一部份

請問你現在家中有沒有一位（男性／女性）年齡介乎____至_____歲之間呢？

若有，繼續訪問。若沒有，多謝他／她及終止訪問。

你能否叫他／她接電話呢？

若能夠，繼續訪問。若不能，問他／她家中有沒有一位男性／女性年齡介乎_____至____歲之間，直至知道他／她家中沒有合適被訪者。多謝他／她及終止訪問。

第二部份

首先，我會問你一些關於產品及環境的意見，及你是否同意一些句子。就像這句：

____ (1) 你認爲環保產品能對保護環境作出一定的貢獻。[5]

你是否同意呢？

那麼你是非常"同意／不同意"還是普通"同意／不同意"呢？

____ (2) 環保產品上的環保標簽是可以信賴的。 [6]

____ (3) 某隻產品的環保裝應以較高價錢出售。[7]

____ (4) 環保包裝至少與環保產品同樣重要。[8]

____ (5) 你相信環保產品的廣告。[9]

____ (6) 你會推薦環保產品給你的朋友。[10]

____ (7) 你願意付出較高的價錢去購買環保產品。[11]

若他／她不同意，跳至第三部份。

(8) 假若有一隻產品的價錢爲＄１０，你會願意多付幾多錢去買一隻同等功能但對環境較好的產品呢？_____ [12-14]

第三部份

我現在會讀出另外一些句子，請指出當你購買洗衣粉時，它們是否屬於一些重要的因素。

____ (9) 價錢 [15]

這是一個重要還是不重要的因素？
這是一個非常"重要／不重要"還是一個普通"重要／不重要"的因素？

____ (10) 對環境較好 [16]
____ (11) 宣傳 [17]
____ (12) 清潔效能 [18]
____ (13) 其他人的意見（如家人，朋友等）[19]
____ (14) 牌子 [20]

____ (15) 那麼你有沒有聽過任何一隻以環保作推廣的洗衣粉？[21]

如有，繼續作答。如沒有，跳至第１９題。

(16) 你能否說出其中一隻牌子的名字呢？_____ [22-23]

____ (17) 你有沒有購買過這類環保洗衣粉？ [24]

如有，繼續作答。如沒有，跳至第１９題。

(18) 那隻牌子呢？_____ [25-26]

現在我會讀出一些與上述類似的句子。請指出當你購買乾電池時，它們是否屬於一些重要的因素。

____ (19) 價錢 [27]

這是一個重要還是不重要的因素？
這是一個非常"重要／不重要"還是一個普通"重要／不重要"的因素？

____ (20) 對環境較好 [28]
____ (21) 宣傳 [29]
____ (22) 更長壽[30]
____ (23) 其他人的意見（如家人，朋友等）[31]
____ (24) 牌子 [32]

____ (25) 那麼你有沒有聽過任何一隻以環保作推廣的乾電池？ [33]

如有，繼續作答。如沒有，跳至第 2 9 題。

(26) 你能否說出其中一隻牌子的名字呢？ _____ [34-35]

____ (27) 你有沒有購買過這類環保乾電池？ [36]

如有，繼續作答。如沒有，跳至第 2 9 題。

(28) 那隻牌子呢？ _____ [37-38]

第四部份

近日人們常談到究竟應該由誰負責推動環保。以下我將會讀出一些組織，請講出你認爲他們在推動環保上應擔任一個重要還是不重要的角色。

____ (29) 政府 [39]

它應該擔任一個重要還是不重要的角色？
它應該擔任一個非常"重要／不重要"還是一個普通"重要／不重要"的角色？

____ (30) 製造商 [40]
____ (31) 零售商 [41]
____ (32) 公眾 [42]

那麼四個團體之中誰應該擔任最重要的角色？次重要？最不重要？

____ (33) 政府 [43]
____ (34) 製造商 [44]
____ (35) 零售商 [45]
____ (36) 公眾 [46]

最後，我會讀出一些環境問題。請你指出它們是重要還是不重要的問題。

____ (37) 固體廢料 [47]

你認爲這是一個重要還是不重要的問題？
你認爲這是一個非常"重要／不重要"還是一個普通"重要／不重要"的問題？

____ (38) 空氣污染 [48]
____ (39) 水質污染 [49]
____ (40) 臭氧層受損 [50]
____ (41) 溫室效應 [51]
____ (42) 原油洩漏[52]

第五部份

最後是一些關於分類的資料。這些資料只會用作統計用途，並會絕對保密。

記錄被訪者性別

____ (43) 被訪者性別 [53]

1) 男
2) 女

____ (44) 我會讀出一些年齡組別。當我讀出你的年齡組別時請叫我停下來。[54]

1) 15 - 24
2) 25 - 34
3) 35 - 44
4) 45 - 54
5) 55 - 64

____ (45) 你的婚姻狀況是： [55]

1) 從未結婚
2) 已婚
3) 分居／離婚／鰥／寡

____ (46) 你的教育程度是： [56]

1) 小學或以下
2) 中學
3) 預科
4) 大專或以上

____ (47) 你的家庭每月總收入是： [57]

1) $4,999 或以下
2) $5,000 - 9,999
3) $10,000 - 14,999
4) $15,000 - 19,999
5) $20,000 - 24,999
6) $25,000 - 29,999
7) $30,000 - 34,999
8) $35,000 或以上

這個調查已經完畢，很多謝你付出寶貴的時間及耐性。

APPENDIX 5

SAMPLE SELECTION

(1) The total numbers of pages of the three telephone directories, with residential numbers, were 467 (Hong Kong and Island), 651 (Kowloon and Sai Kung), and 508 (New Territories). These three figures were then divided by 24, 39, and 37, respectively (for every 100 respondents). The answers were 19, 16, and 13 (decimals were neglected). In other words, for the Hong Kong and Island directory, one number should be randomly drawn from every 19 pages, and it would be started on a page on the first 19 pages, which was randomly decided. For the other two directories, the same procedure was applied.

(2) There were five columns of numbers on every page. Moreover, there were around 106 numbers in every column. Then random procedure was carried out to decided which number in which column should be drawn on every selected page.

(3) The numbers were then highlighted for the ease of interviewers. If an interview was unsuccessful, the next telephone number would be tried, until a successful interview was conducted.

APPENDIX 6

FIELDWORKERS' INSTRUCTIONS

General

(1) Please read through all the questions before asking anybody.

(2) Explanation to any problems or questions from respondents should be as neutral as possible. Don't lead them to a positive or negative attitude towards the issue.

Fieldwork

(1) Never forget to add one to the numbers you're going to dial.

(2) Mark the appropriate box on the recording sheet (see on the following page) when unsuccessful calls are made.

(3) When no one picks up the phone or a busy signal / call waiting is encountered, a call-back should be made later. A period of two hours is considered to be an appropriate time frame.

(4) However, when other types of unsuccessful situations are encountered, interviewers should record this on the recording sheet and try the next number. The same procedure is applied until a successful interview or a call-back situation is encountered.

(5) It is suggested to make a mark besides the number before making a call. Thus, when the call-back situation is encountered, you can simply skip to the number on the next selected page. Furthermore, it is also suggested to cross out the page number when a successful call is made on that page.

(6) Generally speaking, a four-point scale is applied. However, a "Don't Know" response is allowed for unfamiliar environmental problems.

Recording Sheet

Name of the Interviewer: _____

Reason	Frequency
1. Computer / Fax Machine	
2. Non-Working	
3. No Answer *	
4. Busy / Call Waiting *	
5. Business	
6. No Eligible Person	
7. Refusal	
8. Incomplete	

* *One call-back should be made.*

AGE / SEX	Male	Female
15-24	(11)	(10)
25-34	(15)	(15)
35-44	(12)	(12)
45-54	(7)	(6)
55-64	(6)	(6)

APPENDIX 7

RESULTS OF DIALING ATTEMPTS[55]

Result	Number of Dialing[56]	Percentage of Occurrence
1. Computer / Fax Machine	14	3
2. Non-Working	47	10
3. No Answer	119	25
4. Busy / Call Waiting	16	3
5. Business	15	3
6. No Eligible Person[57]	82	17
7. Others[58]	5	1
8. At Home	183	38
Refusal	69	14 (38)[59]
Incomplete	14	3 (8)
Complete	100	21 (55)
Total	**481**	**100**

[55] This table is based upon material in Churchill, Gilbert A. Jr. Marketing Research: Methodological Foundations. 5th ed. Orlando: The Dryden Press, 1991.

[56] Number of dialings include callbacks.

[57] The using of sample quotas increased both the number of dialings and percentage of occurence of this category.

[58] This category included one Japanese and four respondents who are not available at the first calls. One callback was made for each of those four respondents.

[59] Percentage of occurrence based upon At Homes. The figures do not sum up to 100 because of rounding.

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